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CONTAMINATION ASSESSMENT REPORT SITE 2662W NAS PENSACOLA FL

9/1/1994

ABB ENVIRONMENTAL SERVICES, INC

CONTAMINATION ASSESSMENT PLAN

SITE 2662W
NAVAL AVIATION DEPOT
PENSACOLA, FLORIDA

Contract Task Order (CTO) No. 008

Contract No. N62467-89-D-0317

Prepared by:

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Prepared for:

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September 1994

FOREWORD

Subtitle I of the Hazardous and Solid Waste Amendments (HSWA) of 1984 to the Solid Waste Disposal Act (SWDA) of 1965 established a national regulatory program for managing underground storage tanks (USTs) containing hazardous materials, especially petroleum products. Hazardous wastes stored in USTs were already regulated under the Resource Conservation and Recovery Act (RCRA) of 1976. Subtitle I requires that the U.S. Environmental Protection Agency (USEPA) promulgate UST regulations. The program was designed to be administered by the individual States, who were allowed to develop more stringent standards, but not less stringent standards. Local governments were permitted to establish regulatory programs and standards that are more stringent, but not less stringent than either State or Federal regulations. The USEPA UST regulations are found in the Code of Federal Regulations, Title 40, Part 280 (40 CFR 280) (*Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks*) and Title 40 CFR 281 (*Approval of State Underground Storage Tank Programs*). Title 40 CFR 280 was revised and published on September 23, 1988, and became effective December 22, 1988.

The Navy's UST program policy is to comply with all Federal, State, and local regulations pertaining to USTs. This report was prepared to satisfy the requirements of Chapter 17-770, Florida Administrative Code. regulations on petroleum contamination in Florida's environment as a result of spills or leaking tanks or piping.

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
BEI	Bechtel Environmental, Inc.
bls	below land surface
BRAC	Base Realignment and Closure
CA	contamination assessment
CAP	Contamination Assessment Plan
CAR	Contamination Assessment Report
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-Term Environmental Action, Navy
CompQAP	Comprehensive Quality Assurance Plan
CTO	Contract Task Order
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FID	flame ionization detector
HASP	Health and Safety Plan
HSO	Health and Safety Officer
HSM	Health and Safety Manager
HSS	Health and Safety Supervisor
HSWA	Hazardous and Solid Waste Amendments of 1984
ID	inside diameter
IRA	initial remedial action
LEL	Lower Explosive Limit
NADEP	Naval Aviation Depot
NAS	Naval Air Station
OSHA	Occupational Safety and Health Administration
OVA	organic vapor analyzer
PAH	petroleum aromatic hydrocarbons
ppm	parts per million
QA/QC	quality assurance and quality control
RAC	Remedial Action Contract
RCRA	Resource Conservation and Recovery Act
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
SWDA	Solid Waste Disposal Act of 1965
TRPH	total recoverable petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
USTs	underground storage tanks

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), has been contracted by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to prepare a Contamination Assessment Plan (CAP) for well abandonment and remedial activities at Site 2662W, Naval Aviation Depot (NADEP), Pensacola, Florida. The CAP outlines ABB-ES' responsibilities to support the Remedial Action Contract (RAC) contractor during initial remedial action (IRA) activities.

2.0 BACKGROUND

2.1 SITE DESCRIPTION. NADEP Pensacola is based at Naval Air Station (NAS) Pensacola. NAS Pensacola is located on the west edge of Pensacola Bay, 2 miles south of Pensacola, Florida, on Navy Boulevard.

2.2 SITE HISTORY. Site 2662W is the former location of a 1,000-gallon underground storage tank (UST) located near Building 2662, which is in the southeast part of Chevalier Field (Figure 2-1). Chavalier Field is predominantly used as a helicopter maintenance and testing facility. The UST at Building 2662 was installed in 1983 and was removed during a tank removal program, conducted in 1989 and 1990. Building 2662 is used as a helicopter cleaning and stripping facility. According to facility personnel, the UST was used for the storage of water-contaminated JP-5 jet fuel and used oil. The UST was located in a concreted area on the northwest side of Building 2662. This area is currently used for helicopter maintenance and defueling operations.

ABB-ES conducted a contamination assessment (CA) at the site from January 1992 through March 1994. The results are reported in the Contamination Assessment Report (CAR) for Site 2662W, Naval Aviation Depot, Naval Air Station, Pensacola, Florida, April 1994. Subsequent to submittal of the CAR, an IRA technical memorandum was prepared by ABB-ES for the subject site. The IRA technical memorandum was prepared to provide the RAC contractor with the details for excavating and remediating petroleum soils from beneath the site. The approximate area of soil excavation is shown in Figure 2-2.

The major issue driving completion of this new work effort is the start of construction of the Navy's new school at Chevalier Field. Starting in December 1994, Greiner, Inc., will be mobilizing to Chevalier Field to begin demolition, remodeling, and building of the new training facilities. Construction of the school and the prior remedial efforts throughout Chevalier Field are all part of the Base Realignment and Closure (BRAC) initiative.

2.3 PHYSIOGRAPHY. Florida is divided into four physiographic zones: the Coastal Lowlands, the Central Highlands, the Northern Highlands, and the Marianna Lowlands (Puri and Vernon, 1964). The Pensacola area lies entirely within the Coastal Lowlands zone, which closely parallels the Florida coastline. The Coastal Lowlands are further divided into the Atlantic, Distal, and Gulf Coastal Lowlands (Puri and Vernon, 1964). The NADEP Pensacola is located within the Gulf Coastal Lowlands. The lowlands are characterized by poor drainage and elevations less than 100 feet above mean sea level. Landforms include barrier islands, estuaries, coastal ridges, dunes, and valleys (Puri and Vernon, 1964).

Land surface elevations at NADEP Pensacola range from sea level at the coast to greater than 30 feet above mean sea level farther inland. Surface drainage is variable, but is generally toward the nearest body of water.

2.4 HYDROGEOLOGY. The general hydrogeology in the NADEP area is discussed in the regional hydrogeology section. The hydrogeologic conditions that exist beneath Site 2662W is presented in the site-specific hydrogeology section.

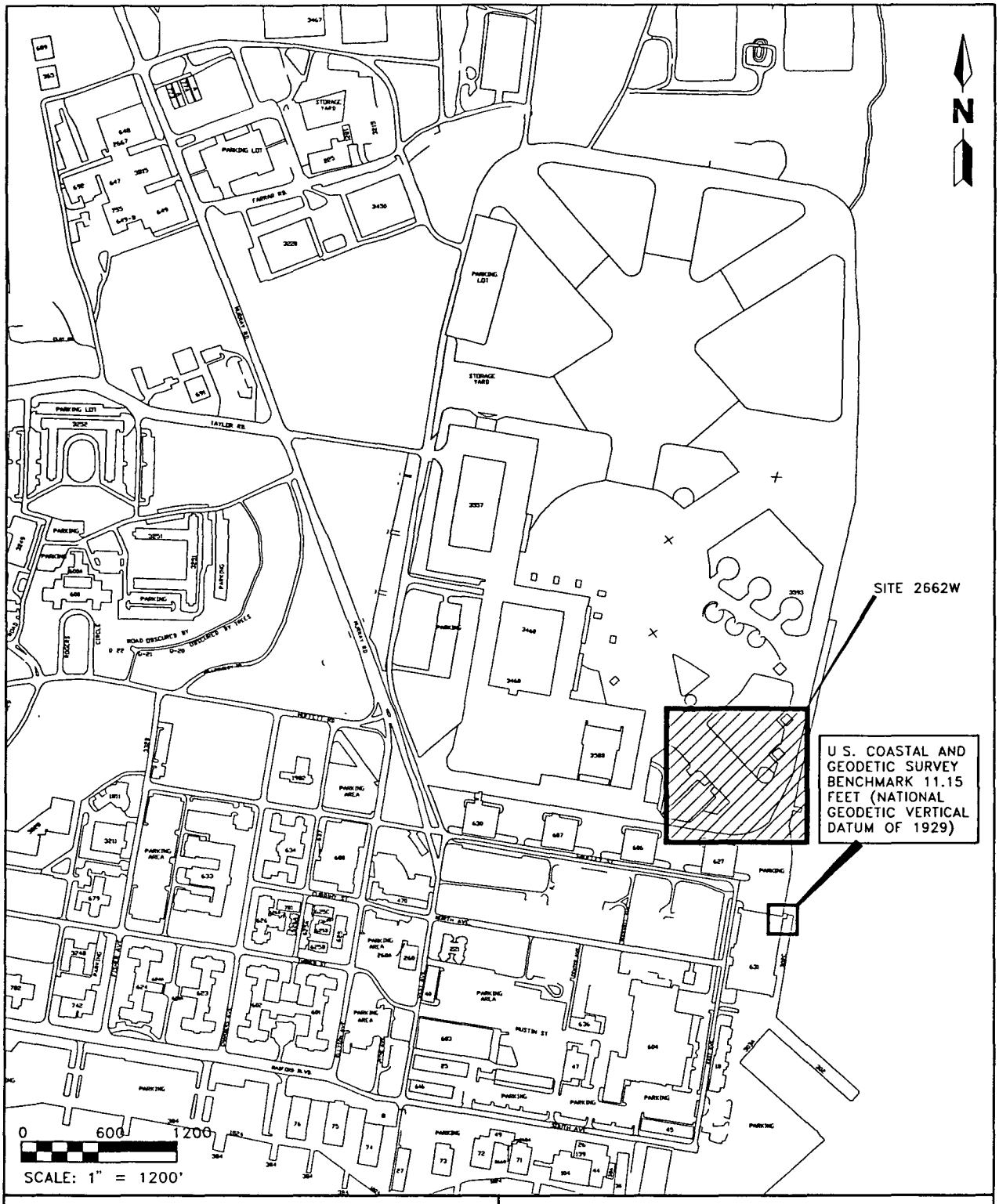

FIGURE 2-1
SITE LOCATION MAP

CONTAMINATION ASSESSMENT PLAN

SITE 2662W
NADEP PENSACOLA
PENSACOLA, FLORIDA

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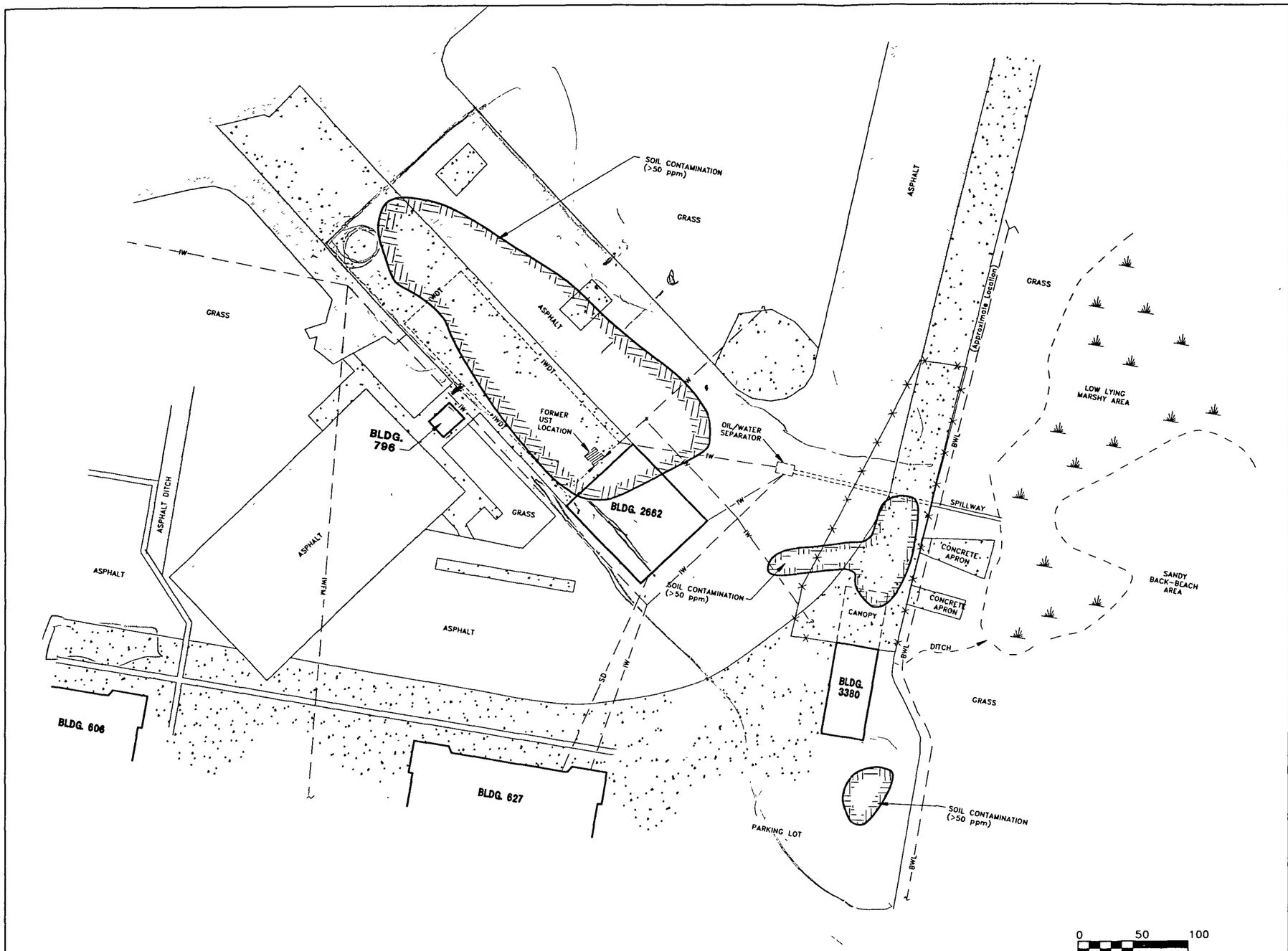

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LEGEND

- Edge of asphalt pavement
- Concrete
- Fence
- IW — Industrial waste line
- IWFM — Industrial waste force main
- BWL — Bilge wastewater line
- IWDT — Industrial waste drainage trench
- SD — Storm drain
- Low lying marsh area
- Area of excessivley contaminated soil greater than 50 parts per million

FIGURE 2-2
AREAL EXTENT OF EXCESSIVELY CONTAMINATED SOIL DETERMINED BY ORGANIC VAPOR ANALYZER (OVA)

CONTAMINATION ASSESSMENT PLAN

SITE 2662W
NADEP PENSACOLA
PENSACOLA, FLORIDA

H:\PENSCOLA\7527-50\FIGS-X\KP-WDW\09-23-94

2.4.1 Regional The Pensacola area is underlain by three water-bearing zones. These zones, in order of increasing depth, are: the sand-and-gravel aquifer, the Upper Floridan aquifer system, and the Lower Floridan aquifer system.

The sand-and-gravel aquifer is comprised of Pleistocene terrace deposits, the Pliocene Citronelle Formation (Marsh, 1966), and Miocene coarse clastics. These deposits extend from the surface to a depth of approximately 400 feet below land surface (bls) and are predominantly poorly sorted, fine-grained to coarse-grained sand interbedded with numerous layers of clay and gravel (up to 60 feet thick). There is great lithologic variability in these deposits. Clay lenses and the presence of hardpan layers within the sand-and-gravel aquifer result in the occurrence of perched water tables and artesian conditions in some areas (Musgrove and others, 1965). Groundwater flow is generally topographically controlled. Recharge to the aquifer is derived almost entirely from local rainfall. The sand-and-gravel aquifer is the sole source of potable groundwater in the Pensacola area (Roaza and others, 1991).

The sand-and-gravel aquifer is divided into three major zones: the surficial zone, the low permeability zone, and the main producing zone (Roaza and others, 1991). These designations are based on changes in permeability of the sediments comprising each zone. The surficial zone is the uppermost layer of the aquifer. It consists primarily of sand and gravel with occasional silt and clay deposits. This zone ranges in thickness from 0 to 150 feet (Roaza and others, 1991). The low permeability zone, which underlies the surficial zone, consists of various mixtures of clay, silt, sand, and gravel. Locally, this zone contains poorly sorted sand, with gravel and some clay (Roaza and others, 1991). The thickness of the zone varies from 50 to 100 feet. Individual beds of the low permeability zone are highly discontinuous, and in some areas there may be hydraulic connection between the surficial zone and the main producing zone. The main producing zone is composed of moderate to well-sorted sand-and-gravel beds that are typically interbedded with beds of fine-grained sand and clay. Locally, this zone typically contains medium-grained sand and sandy clays (Roaza and others, 1991). The thickness of the main producing zone ranges from 200 to 300 feet.

The Upper Floridan aquifer system is composed of deposits correlative to the lower Miocene Tampa Formation and the upper Oligocene Chickasawhay Formation. These two formations are undifferentiated in the Pensacola area. Locally, these deposits are approximately 380 feet thick (Marsh, 1966) and are typically brown to light gray, hard, fossiliferous dolomitic limestone or dolomite with a distinctive spongy-looking texture. Locally, the overlying Pensacola Clay is approximately 1,000 feet thick and forms an effective confining unit between the sand-and-gravel aquifer and the Upper Floridan aquifer system (Marsh, 1966). This confining unit has also been designated as part of the Intermediate System (Roaza and others, 1991). The Upper Floridan aquifer system is recharged by local rainfall in Conecuh, Escambia, and Monroe Counties, Alabama (Healy, 1980). General groundwater flow in the Upper Floridan aquifer system is to the southeast toward the Gulf of Mexico (Barr, 1987). The groundwater in the Upper Floridan aquifer system is mineralized in the Pensacola area and is not used as a water supply.

The Lower Floridan aquifer system is composed of upper to middle Eocene limestones. The aquifer is approximately 500 feet thick in the vicinity (Marsh, 1966). The limestones are typically white to grayish cream, soft, and chalky. The Lower Floridan aquifer system is confined from above by the Bucatunna Clay Member of the middle Oligocene Byram Formation and from below by gray shales and clays of middle

Eocene age. The Bucatunna Clay, also called the Intermediate Zone, is approximately 170 feet thick in the Pensacola area (Musgrove and others, 1965). Groundwater flow in the aquifer is to the southeast toward the Gulf of Mexico (Healy, 1980). The water quality is poor because of high mineralization.

2.4.2 Site Specific The principal water-bearing zone of concern at Site 2662W is the surficial zone of the sand-and-gravel aquifer. The surficial zone is unconfined, and the water table has been encountered at depths ranging from 1 to 6 feet bls during previous investigations. Groundwater flow at Site 2662W is to the southeast.

In some areas near NAS Pensacola, the surficial zone of the sand-and-gravel aquifer has been demonstrated to be hydraulically connected with the main producing zone of the sand-and-gravel aquifer, making potable water supplies susceptible to contamination in these areas (Roaza and others, 1991). For this reason, the surficial zone at NAS Pensacola will be treated as a Class G-II groundwater source, and Class G-II FDEP regulatory standards will be applied during this investigation.

3.0 INVENTORY OF PROXIMATE POTABLE WATER WELLS

A potable well survey was conducted to assess the risk of contamination to potable water sources during investigations of nearby sites (Sites 2662W, 3810N, 3450S, and 604). Two potable supply wells exist at NAS Pensacola (Wilkins and others, 1985). The NAS Pensacola water supply system is used in conjunction with the Corry Field water supply system, which is located approximately 2 miles north of NAS Pensacola. According to NADEP personnel, these wells are not currently used for potable water supplies at NAS Pensacola, but are available as reserve potable water supplies should the need arise.

Potable well inventory data are presented in Table 3-1. Both wells at NAS Pensacola are screened in the main producing zone of the sand-and-gravel aquifer at depths ranging from 105 to 160 feet bls. Neither of the potable wells is located within a 0.25-mile radius of Site 2662W.

Table 3-1
Potable Well Inventory Data

Contamination Assessment Plan
AVGAS Pipeline Area
NADEP Pensacola, Florida

Well Identification Number/Local Name	Location	Total Depth (feet bls)	Screened Interval (feet bls)	Diameter Casing/Screen (inches)
302116087170201/No. 1	Sec. 1,T3S,R30W Duncan and Taylor Roads	174	105-160	24/12
302124087163601/No. 2	Sec. 1,T3S,R30W Murray and Farrar Roads	178	110-160	24/12

Note: bls = below land surface.

4.0 PROPOSED ASSESSMENT PLAN

4.1 WELL ABANDONMENT. Prior to Bechtel Environmental, Inc. (BEI), mobilizing to the site to begin excavation of soil, ABB-ES will grout abandon all monitoring wells within, or in close proximity to, the proposed area of soil excavation. Monitoring wells to be abandoned are shown in Figure 4-1. The wells will be grout abandoned in compliance with the State of Florida Department of Environmental Protection (FDEP) and the Northwest Florida Water Management District requirements for abandoning monitoring wells.

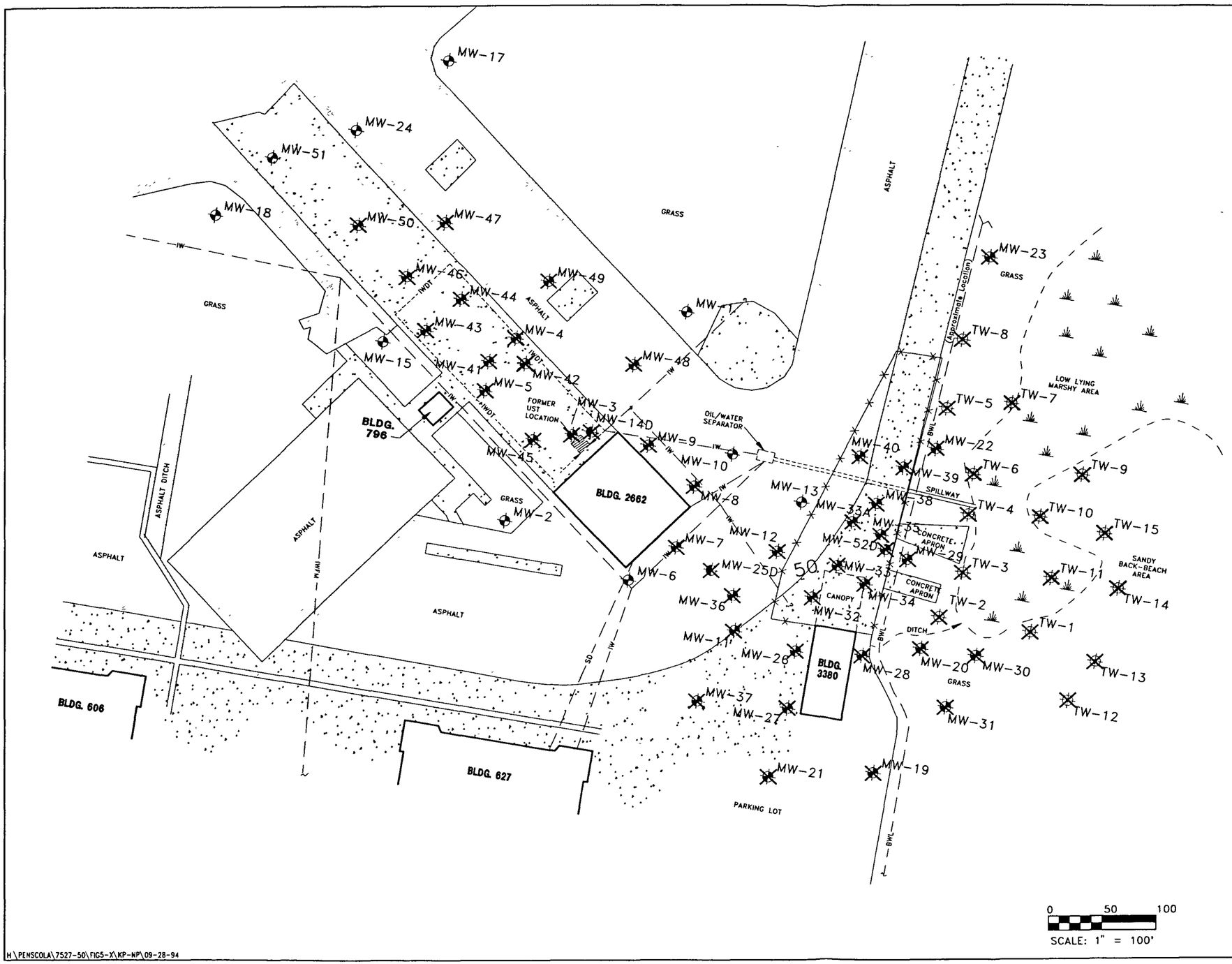
Upon completion of the monitoring well abandonment activities, a monitoring well abandonment letter report will be prepared. The letter will include a site sketch of the wells that were abandoned and the details of the abandonment process.

4.2 INITIAL REMEDIAL ACTIONS. The IRA will consist of the removal of petroleum-contaminated soil possessing organic vapor analyzer (OVA) readings greater than 50 parts per million (ppm) and replacing it with clean fill. ABB-ES will assist the RAC contractor by screening the soil near the defined limits of the contaminated zone. Soil samples will be collected along the perimeter of the excavated area at 20- to 30-foot intervals. The soil samples will be screened using an OVA equipped with a flame ionization detector (FID). This screening will verify that the extent of soil contamination with total volatile organic compound contamination of less than 50 ppm has been reached. ABB-ES will then be able to verify that BEI has reached the 50 ppm extent of contaminated soil as specified by the Alternate Procedures Request approval letter and that the contaminated soil has been removed. Site visits will be conducted weekly throughout the excavation period.

During the IRA, ABB-ES personnel and their subcontractors will stockpile contaminated drilling cuttings (sustained OVA readings of greater than 50 ppm) on plastic sheeting for aeration. The drilling cuttings will be screened with an OVA at the completion of the field investigation. If OVA readings have dropped below 50 ppm, the cuttings will be spread in an area designated by the NADEP Pensacola Environmental Coordinator. If OVA readings from the drilling cuttings remain in excess of 50 ppm, ABB-ES' subcontractor will drum the cuttings. Disposal of the drummed cuttings will be the responsibility of the Navy.

4.3 SOIL BORINGS AND MONITORING WELL INSTALLATION. Upon completion of the soil removal operations, ABB-ES will conduct soil borings and install temporary groundwater monitoring wells in the previously excavated area. Approximately 30 soil borings will be advanced to the water table. The soil will be screened per Chapter 17-770, Florida Administrative Code (FAC) requirements. Approximately eight temporary monitoring wells will be installed within the excavated area. The wells will be constructed of 2-inch inside diameter (ID), Schedule 40, stainless-steel casing with flush-threaded joints and 5 feet of 0.010-inch machine-slotted screen. Each well will be manually installed to a depth of 5 feet bls.

4.4 GROUNDWATER SAMPLING. Groundwater samples will be collected from the eight new wells in addition to eight existing wells around the perimeter of the excavation area. The samples will be analyzed for volatile organics by U.S. Environmental Protection Agency (USEPA) Method 602, for petroleum aromatic



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LEGEND

- Edge of asphalt pavement
- Concrete
- Fence
- IW — Industrial waste line
- IWFM — Industrial waste force main
- BWL — Bilge wastewater line
- IWDT — Industrial waste drainage trench
- SD — Storm drain
- Low lying marsh area
- Shallow monitoring well location
- Deep monitoring well location
- Monitoring well to be abandoned

FIGURE 4-1
MONITORING WELLS TO BE ABANDONED

CONTAMINATION ASSESSMENT PLAN

SITE 2662W
NADEP PENSACOLA
PENSACOLA, FLORIDA

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hydrocarbons (PAH) by USEPA Method 610, and for total recoverable petroleum-hydrocarbons (TRPH) by USEPA Method 418.1. Appropriate quality assurance and quality control (QA/QC) samples, including a decontamination water source blank, will also be collected and analyzed. Groundwater samples will be collected with Teflon™ bailers and shipped via overnight carrier to a USEPA-approved analytical laboratory. The analytical sampling program will comply with the ABB-ES Comprehensive Quality Assurance Plan (CompQAP). These activities are to comply with the FDEP comments for approval of the CAR for Site 2662W.

4.5 FINAL WELL ABANDONMENT. Upon receipt of the data and the determination that the existing permanent wells are no longer needed, ABB-ES will return to the site to grout abandon any remaining monitoring wells that may require abandonment. ABB-ES anticipates abandoning as many as 10 monitoring wells during this activity.

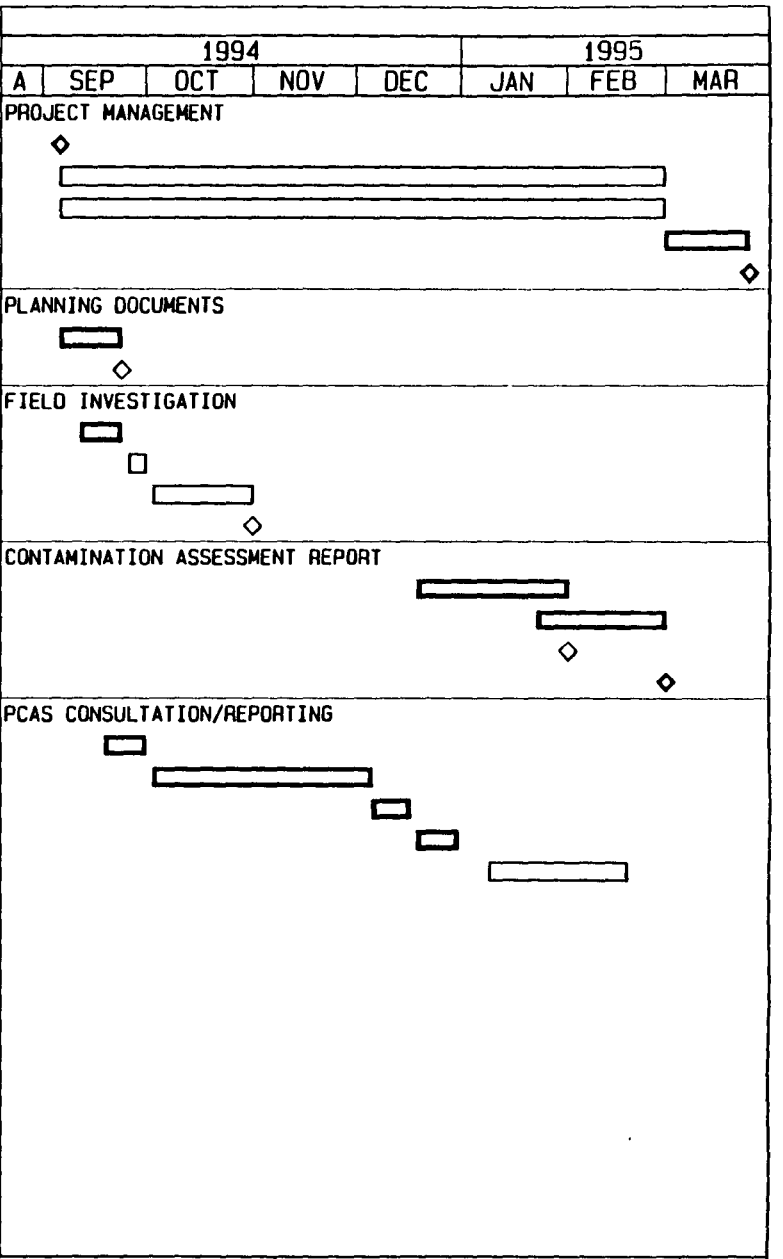
5.0 CONTAMINATION ASSESSMENT REPORT (CAR) ADDENDUM

Upon completion of the IRA soil remediation and groundwater sampling at 2662W, a CAR addendum will be prepared summarizing soil removal, screening, and incineration data. The report will also include a summary and discussion of the groundwater analytical data. A recommendation will be made for future action at the site. It is anticipated that the levels of petroleum contamination in groundwater will decrease, or at the very least remain the same. In either case, a Monitoring Only Plan (MOP) will be required for at least 1 year to verify that the groundwater contamination is not increasing with time. Additional monitoring wells will be required in the vicinity of the excavated area to implement the MOP after construction of the new training facilities. The placement of these monitoring wells will depend on the size and location of the Navy's new training facilities.

6.0 SCHEDULE

The attached figure depicts a Gantt Schedule, indicating the duration and initiation and completion dates of individual tasks for the IRA soil remediation and groundwater sampling at Site 2662W, NADEP Pensacola. As noted on the Gantt schedule, the activities, from intial well abandonment to submission of the MOP, will last an estimated 7 months.

ACTIVITY DESCRIPTION	EARLY START	EARLY FINISH	ORIG DUR
SITE 2662W: JOB NOTICE TO PROCEED	6SEP94		0
SITE 2662W: DAY-TO-DAY MANAGEMENT	6SEP94	28FEB95	122
SITE 2662W: TFMA REVIEW & PREPARATION	6SEP94	28FEB95	122
SITE 2662W: JOB CLOSEOUT	1MAR95	24MAR95	18
SITE 2662W: JOB COMPLETE		24MAR95	0
SITE 2662W: CAP & HASP PREPARATION	6SEP94	23SEP94	14
SITE 2662W. SUBMIT CAP & HASP TO NAVY		23SEP94	0
SITE 2662W: WELL ABANDONMENT PERMITTING	12SEP94	23SEP94	10
SITE 2662W: WELL ABANDONMENT GROUTING WELLS	26SEP94	30SEP94	5
SITE 2662W: WELL ABANDONMENT REPORT PREP.	30CT94	31OCT94	21
SITE 2662W: SUBMIT WELL ABANDONMENT REPORT		31OCT94	0
SITE 2662W: PREPARE IRA SUMMARY RPT/CAR ADDEND.	19DEC94	31JAN95	30
SITE 2662W: PREPARE MOP	23JAN95	28FEB95	27
SITE 2662W: SUBMIT IRA SUMMARY RPT/CAR ADDEND.		31JAN95	0
SITE 2662W: SUBMIT MOP		28FEB95	0
SITE 2662W: RAM SUPPORT - BEI/WP REVIEW	19SEP94	30SEP94	10
SITE 2662W: RAM SUPPORT - VERIF. SOIL SAMPL	30CT94	5DEC94	44
SITE 2662W: RAM SUPPORT-SOIL SCREE/MW INSTAL	6DEC94	16DEC94	9
SITE 2662W: RAM SUPPORT-GROUND WATER SAMPLIN	19DEC94	30DEC94	9
SITE 2662W: RAM SUPPORT-WELL ABANDON./PERMITTING	9JAN95	17FEB95	30



Plot Date 15AUG94
Data Date 24JUL94
Project Start 7OCT91
Project Finish 24MAR95

(c) Primavera Systems, Inc

Activity Bar/Early Dates
Critical Activity
Progress Bar
Milestone/Flag Activity

R021 A008 Sheet 1 of 1

CTO 008/MOD NADEP PENSACOLA
REMEDIATION SUPPORT AT SITE 2662W
PROPOSED BASELINE SCHEDULE

ABB-ES, INC /NAVY CLEAN I

Date	Revision	Checked	Approved

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